



DEPARTMENT OF TRANSPORTATION  
HAZARDOUS MATERIALS REGULATIONS BOARD  
WASHINGTON, D.C. 20590

20083

[Docket No. HM-97; Amdts. 171-20, 173-73,  
174-18, 177-26, 179-11.]

**SHIPMENT OF HAZARDOUS MATERIALS**

The purpose of these amendments to the Hazardous Materials Regulations of the Department of Transportation is (1) to change the definition of a portable tank; (2) to require the marking of packagings containing radioactive materials with the proper shipping name; (3) to change the proper shipping name of dry calcium hypochlorite compounds; (4) to authorize the shipment of empty primed cartridge cases in DOT-21C fiber drums; (5) to authorize the shipment of monoethylamine in DOT-5P insulated steel drums; (6) to authorize the shipment of benzoyl peroxide, wet with at least 20 percent of water by weight, in DOT-12B and DOT-21C packagings; (7) to authorize the shipment of phosphorus trichloride in unlined, mild steel, specifications MC 310, MC 311, MC 312 cargo tanks; (8) to authorize the shipment of carbon dioxide in cylinders filled to a maximum density of 68 percent of the water capacity regardless of cylinder capacity; (9) to authorize the shipment of hydrogen sulfide in cylinders and multi-unit tank car tanks equipped with gas tight caps or plugs applied to valve outlets, and to authorize the use of metal covers over the valves of multi-unit tank car tanks in place of gas-tight valve protective covers now required; (10) to authorize the shipment of nitric oxide in DOT-106A500X tank cars; and (11) to add the loading and storage restrictions for practice ammunition cartridges to §§ 174.538 and 177.848.

On March 1, 1972, the Hazardous Materials Regulations Board published a notice of proposed rule making, Docket No. HM-97; Notice No. 72-1 (37 FR 4295), which proposed these amendments except for the portable tank definition and the editorial changes concerning calcium hypochlorite. Interested persons were invited to give their views.

These amendments do not include the proposed changes to Proposal A and B which relate to the marking of packagings containing a mixture or solution and the spelling change to monofluorotrichloromethane, respectively. The Board has concluded that the package marking changes of Proposal A require further

study. However, that portion of Proposal A requiring the marking of packagings containing radioactive materials appears in this document. The spelling change proposed for monofluorotrichloromethane does not appear in these amendments because a commenter has submitted a list of halocarbon materials which should also be changed in line with the proposed changes of Proposal B. This commenter has stated that these changes would be more appropriate if published with other petitioned changes relating to halocarbon materials. The Board agrees with the commenter and the contents of Proposal B will become part of another docket which will be published at a later date.

A revised definition of a portable tank appeared as a proposal in Docket No. HM-8; Notice No. 71-13 (36 FR 9449). This proposed definition included a cargo-carrying tank on an aircraft and clarified that a DOT-110 type multi-unit tank car tank should not be construed as a portable tank. There were no objections filed to the proposal. The Board is publishing the definition as it was proposed in § 171.8(g), Docket No. HM-8; Notice No. 71-13 except for the reference to a tank on an aircraft. This will be handled at a later date.

An objection was received from a commenter concerning the proposal which provides for the shipment of benzoyl peroxide in an inside plastic container in a DOT-21C fiber drum. The objection was directed to the apparent limitation on the number of inside containers in each fiber drum. The commenter stated that it is a common practice of industry to package this material in a number of inner plastic containers in a DOT-21C fiber drum. This practice was based on the conclusion that a given weight of benzoyl peroxide in a fiber drum would not be more hazardous if packed into several inner plastic containers than if packed in one large inner plastic container. As it was not the intent of the Board to specify that only one inner container be authorized, the regulations are changed to authorize benzoyl peroxide to be shipped in any number of inner plastic containers in a DOT-21C fiber drum provided the weight restrictions on the material are met.

Another commenter on this proposal requested that paragraphs (a)(5) and (b)(1) of § 173.157 be amended to permit the gross weight of the DOT-12B65 fiberboard box to be increased to 80 pounds provided the net weight of the material does not exceed 50 pounds. The Board has purposely omitted the permissive increase of the DOT-12B65 fiberboard box to a gross weight of 80 pounds in these two subparagraphs. The petition, which led to the development of this proposal, did not request such a regulation change. Also, the special permits issued to obtain practical shipping experience with the material in these fiberboard boxes did not authorize such a weight. Therefore, the Board does not agree with this proposed change and, in fact, is discouraging petitions for changes of this nature. If the DOT-12B65 fiberboard box has the capability of performing with a gross weight of 80 pounds, then the authorized gross weight for the specification should be so amended. No petition has been received justifying such a change.

Another objection to this proposal dealt with the proposed use of "dry weight" or "wet weight" as terms for expressing weight provisions for benzoyl peroxide. The commenter stated that the consistency of the regulations would be destroyed because weight restrictions of packagings are usually based on the actual net weight of the contents. The Board has not proposed any changes in the weight provisions for this material but has only identified the industry practice of referring to certain peroxides in a specific condition for packaging weight purposes. This type of material condition identification, expressed as "dry weight" or "wet weight," has been used by manufacturers of benzoyl peroxide for many years without any significant problems. Therefore, the Board has adopted these terms for use only in the section of the regulations dealing with benzoyl peroxide, wet.

Also, a commenter requested that the reference to asbestos as a packaging material be eliminated in this proposal because its use would constitute a health hazard. The reference to asbestos is included in the current regulations and the notice did not propose to delete asbestos. Therefore, the Board is of the opinion



that it may not make this deletion without another rule making which would directly focus upon the value of asbestos to transportation safety and the hazards asbestos might cause to personnel packing and unpacking packages. The present regulations covering benzoyl peroxide do provide for the use of an equivalent fire-resistant cushioning material in place of asbestos; thus, the shipper has the opportunity to utilize other cushioning materials.

In Docket No. HM-32; Notice 69-24 (34 FR 13426) it was proposed to shorten the shipping name of "calcium hypochlorite compounds, dry, containing more than 39 percent available chlorine." The reason for this proposal was to eliminate the quantitative phrase in this shipping name because it was determined not necessary for identification of the hazardous material from the standpoint of marking name of contents on packages and for the purpose of description on shipping papers. In addition to the subject matter, comments were received on this notice which suggested that the word "mixture" would be more appropriate than "compound" in the proper shipping name for this material since the use of the broader terminology would cover several conditions of manufacture. The Board agreed with the commenters and the changes were made in the shipping name for this material in the list of hazardous materials (§ 172.5) in Docket No. HM-32; Amendment 172-5 (35 FR 10858). Inadvertently, this change to the shipping name was not made in the Table of Contents for Part 173, or in the heading, text, and packaging references of § 173.217 which covers this material. Therefore, this amendment corrects these references where they cite the shipping name for dry calcium hypochlorite compounds.

A commenter to the proposal which authorizes the shipment of carbon dioxide in cylinders filled to a maximum density of 68 percent of the water capacity regardless of cylinder capacity objected on the basis that safety would be downgraded because it would impose a burden on cylinder filling personnel by requiring them to fill cylinders to different capacities. A number of large companies have received special permits from the Board and have satisfactory shipping experiences with these cylinders. The Compressed Gas Association has stated that these permits should be continued. However, this approach does preclude other shippers from taking advantage of higher fill densities. As the commenter has not presented any data to support his contention of safety being downgraded and on the basis of the experience obtained under special permit, the Board is authorized carbon dioxide to be shipped in any cylinder filled to a maximum density of 68 percent of its water capacity.

In consideration of the foregoing, 49 CFR Parts 171, 173, 174, 177, and 179 are amended as follows:

#### **PART 171—GENERAL INFORMATION AND REGULATIONS**

In § 171.8, paragraph (g) is amended to read as follows:

#### **§ 171.8 Definitions.**

(g) The term "portable tank" means any tank designed primarily to be temporarily attached to a motor vehicle, other vehicle, railroad car other than tank car, or vessel, and equipped with skids, mountings, or accessories to facilitate handling of the tank by mechanical means. The term "portable tank" does not include any cargo tank, any tank car tank, or any tank of the DOT 106A or 110A type (§§ 179.300, 179.301 of this subchapter).

#### **PART 173—SHIPPERS**

(A) In the table of contents for Part 173 §§ 173.107 and 173.217 are amended to read as follows:

Sec.	
173.107	Primers, percussion caps, grenades, empty, primed, and cartridge cases, empty, primed.
173.217	Calcium hypochlorite mixtures, dry, lithium hypochlorite compounds, dry, dichloroisocyanuric acid, dry, potassium dichloroisocyanurate, dry, sodium dichloroisocyanurate, dry, and trichloroisocyanuric acid, dry.

(B) In § 173.107, the heading and paragraph (b) are amended to read as follows:

**§ 173.107 Primers, percussion caps, grenades, empty, primed, and cartridge cases, empty, primed.**

(b) Empty cartridge cases, primed, must be packed in strong, tight, outside wooden or fiberboard boxes, or in specification packagings as follows:

(1) Specification 21C (§ 178.224 of this subchapter) fiber drum. Each drum must be constructed to the specification requirements for a drum containing at least 250 pounds net weight of contents. Each drum having a metal top or bottom must have a protective corrugated paperboard pad inserted between the contents and the metal.

(C) In § 173.148, paragraph (a) (1) is amended to read as follows:

#### **§ 173.148 Monoethylamine.**

(a) \* \* \*

(1) Specification 5, 5A, or 5P (§§ 178.80, 178.81, 178.92 of this subchapter). Metal barrel or drum equipped with openings not exceeding 2.3 inches in diameter. Bung labels must be applied and must meet the requirements prescribed in § 173.119(i).

(D) In § 173.157, paragraphs (a), (a) (1), and (a) (3) through (5) are amended: paragraph (b) is added to read as follows:

**§ 173.157 Benzoyl peroxide, chlorobenzoyl peroxide (para), cyclohexanone peroxide, dimethylhexane dihydroperoxide, lauroyl peroxide, or succinic acid peroxide, wet.**

(a) Benzoyl peroxide, chlorobenzoyl peroxide (para), dimethylhexane dihy-

droperoxide, lauroyl peroxide, and succinic acid peroxide, each wet with at least 30 percent of water by weight, and cyclohexanone peroxide over 50 percent concentration but not exceeding 85 percent concentration, wet, must be packed in specification packagings as follows:

(1) Specification 15A, 15B, or 15C (§§ 178.168, 178.169, 178.170 of this subchapter). Wooden box with inside metal containers or lining, specification 2F (§ 178.25 of this subchapter), or with securely closed inside paper bags lined with polyethylene at least 0.002 inch thick, or with inside aluminum drums of at least 16 gage metal throughout. Net weight (dry weight) in each inside DOT-2F metal container or in each paper bag may not exceed 1 pound. Gross weight may not exceed 200 pounds.

(3) Specification 12B (§ 178.205 of this subchapter). Fiberboard box with inside fiber containers securely closed by taping or gluing, or with securely closed inside paper bags lined with polyethylene at least 0.002 inch thick. Net weight (dry weight) in each inside container may not exceed 1 pound. Except for lauroyl peroxide, wet, each inside container must be surrounded by asbestos or an equivalent fire-resistant cushioning material. Gross weight in specification 12B65 fiberboard box may exceed 65 pounds, but may not exceed 80 pounds, provided the net weight (dry weight) of the contents does not exceed 50 pounds.

(4) Specification 21C (§ 178.224 of this subchapter). Fiber drum with securely closed inside plastic containers made of polyethylene film at least 0.002 inch thick for cyclohexanone peroxide over 50 percent concentration but not exceeding 85 percent concentration and for dimethylhexane dihydroperoxide; with securely closed inside plastic containers made of polyethylene film at least 0.004 inch thick for benzoyl peroxide wet with at least 30 percent of water by weight. Authorized net weight (wet weight) in one outside drum may not exceed 50 pounds for cyclohexanone peroxide, 100 pounds for dimethylhexane dihydroperoxide, or 225 pounds for benzoyl peroxide.

(5) Specification 12B (§ 178.205 of this subchapter). Fiberboard box with securely closed inside plastic containers made of polyethylene film at least 0.004 inch thick. Net weight (dry weight) in each inside container may not exceed 10 pounds. Each inside container must be surrounded by asbestos or an equivalent fire-resistant cushioning material. Authorized only for benzoyl peroxide.

(b) Benzoyl peroxide, wet with at least 20 percent of water by weight, must be packed in specification packagings as follows:

(1) Specification 12B (§ 178.205 of this subchapter). Fiberboard box with securely closed inside paper bags lined with polyethylene at least 0.002 inch thick. Net weight (dry weight) in each bag may not exceed 1 pound. Each bag must be surrounded by asbestos or an equivalent fire-resistant cushioning material.

(2) Specification 21C (§ 178.224 of this subchapter). Fiber drum with securely closed inside plastic containers made of



polyethylene film at least 0.004 inch thick. Net weight (dry weight) in each outside drum may not exceed 25 pounds.

(3) Specification 12B (§ 173.205 of this subchapter). Fiberboard box with securely closed inside plastic containers made of polyethylene film at least 0.004 inch thick. Net weight (dry weight) in each inside container may not exceed 10 pounds. Each inside container must be surrounded by asbestos or an equivalent fire-resistant cushioning material. Net weight (dry weight) in each outside box may not exceed 25 pounds.

(E) In § 173.217, the heading, the introductory text of paragraph (a) and paragraph (a)(4), and (a)(5) are amended to read as follows:

**§ 173.217 Calcium hypochlorite mixtures, dry, lithium hypochlorite compounds, dry, dichloroisocyanuric acid, dry, potassium dichloroisocyanurate, dry, sodium dichloroisocyanurate, dry, and trichloroisocyanuric acid, dry.**

(a) Calcium hypochlorite mixtures, dry, lithium hypochlorite compounds, dry, dichloroisocyanuric acid, dry, potassium dichloroisocyanurate, dry, sodium dichloroisocyanurate, dry, and trichloroisocyanuric acid, dry, each containing more than 39 percent available chlorine must be packed in specification packagings as follows:

(4) Specification 21C (§ 178.224 of this subchapter). Fiber drum with commodity packed in securely closed polyethylene

bag constructed of polyethylene film not less than 0.004-inch thickness. Not authorized for calcium hypochlorite mixtures and lithium hypochlorite compounds, dry.

(5) Specification 21C (§ 178.224 of this subchapter). Fiber drum must be made with integral inner body ply having 0.010-inch minimum aluminum facing and bottom interior with 0.001-inch minimum aluminum facing. Cover of drum must be gasketed. Authorized net weight not over 400 pounds. Authorized only for calcium hypochlorite mixtures, dry.

(F) In § 173.271, paragraph (a)(8) (iii) is amended to read as follows:

**§ 173.271 Phosphorus oxybromide, phosphorus oxychloride, phosphorus trichloride, and thiophosphoryl chloride.**

(a) \* \* \*

(8) \* \* \*

(iii) Tanks made from mild steel or austenitic stainless steel, without lining or cladding. Authorized only for phosphorus trichloride.

(G) In § 173.304 paragraph (a)(2), the table is amended; Note 3 is canceled, and Note 10 is added to read as follows:

**§ 173.304 Charging of cylinders with liquefied compressed gas.**

(a) \* \* \*

(2) \* \* \*

Kind of gas	Maximum permitted filling density (see Note 1)	Containers marked as shown in this column or of the same type with higher service pressure must be used except as provided in § 173.34(a), (b), § 173.301(d) (see notes following table).
(change)	Percent	
Carbon dioxide, liquefied (see Notes 4, 7, and 8).	68	DOT-3A1800; DOT-3AA1800; DOT-3; DOT-3E1800; DOT-3HTX2000; DOT-39.
Hydrogen sulfide (see Note 10).....	62.5	DOT-3A480; DOT-3AA480; DOT-3B480; DOT-4A480; DOT-4B480; DOT-4BA480; DOT-4BW480; DOT-26-480; DOT-3E1800.

**NOTE 3: [Canceled.]**

**NOTE 10:** Each valve outlet must be sealed by a threaded cap or a threaded solid plug.

(H) In § 173.314 paragraph (c) table, Note 8 is amended to read as follows:

**§ 173.314 Requirements for compressed gases in tank cars.**

(c) \* \* \*

**NOTE 8:** Tanks may not be equipped with safety-relief devices of any description. Each valve outlet must be sealed by a threaded cap or a threaded solid plug. In addition, the valves must be protected by a metal cover.

(I) In § 173.337, paragraph (a)(4) is added to read as follows:

**§ 173.337 Nitric oxide.**

(a) \* \* \*

(4) Specification 106A500X (§§ 179.300, 179.301 of this chapter) tanks.

Nitric oxide charge in each tank may not exceed 200 p.s.i.g. at 70°F. Each tank must be equipped with gas-tight valve protection caps (see § 179.302 of this chapter). Each valve outlet must be sealed by a threaded solid plug or a threaded cap with inert luting or gasket material. Valves must be of stainless steel and the caps, plugs, and valve seats must be of material that will not be deteriorated by contact with nitric oxide or nitrogen dioxide. The tank may not be equipped with any safety relief device.

(J) In § 173.401, paragraph (a) is amended to read as follows:

**§ 173.401 Hazardous materials.**

(a) Packagings containing hazardous materials other than explosives must be marked, unless exempted, with the proper shipping name as shown in the list of hazardous materials (see § 172.5(a) of this chapter). For tank cars, this marking must appear either on the placards or commodity cards. For explosives,

packagings must be marked in accordance with the requirements of § 173.400.

(1) Each portable tank used for the transportation of a hazardous material must be conspicuously and legibly marked, on a background of sharply contrasting color with a sign or lettering on the tank, such as "Corrosive Liquid", "Compressed Gas", or "Flammable Compressed Gas" as appropriate, and with the proper shipping name as shown in the list of hazardous materials (see § 172.5(a) of this chapter). The height of all required lettering must be at least 2 inches or one-tenth the diameter of the tank, whichever is greater. Each portable tank must be marked with the owner's name. In addition to these markings, the trade name for the contents may be marked on the portable tank: *Provided, however,* That no such marking will be of such size and character as to render the required markings inconspicuous.

#### PART 174—CARRIERS BY RAIL FREIGHT

(A) In § 174.538 paragraph (a) Chart, column 4, both vertically and horizontally, is amended to read as follows:

**§ 174.538 Loading and storage chart of hazardous materials.**

(a) \* \* \*

4—Small arms ammunition, or cartridges, practice ammunition.

(B) In § 174.545, paragraph (a) is amended to read as follows:

**§ 174.545 Commodity name on carloads.**

(a) Placards for carloads of Class B explosives and other hazardous materials must show in the space provided on the placard, the proper shipping name of the contents as shown in the list of hazardous materials (see § 172.5(a) of this chapter). Alternatively, the proper shipping name may be shown on tagboard cards measuring approximately 5 by 8 inches securely attached to each side of the car.

#### PART 177—SHIPMENTS MADE BY WAY OF COMMON, CONTRACT, OR PRIVATE CARRIERS BY PUBLIC HIGHWAY

In § 177.848 paragraph (a) Chart, column 4, both vertically and horizontally, is amended to read as follows:

**§ 177.848 Loading and storage chart of hazardous materials.**

(a) \* \* \*

4—Small arms ammunition, or cartridges, practice ammunition.

#### PART 179—SPECIFICATIONS FOR TANK CARS

In § 179.302 paragraph (a), the Table and footnote 5 are amended; footnote 6 is added to read as follows:

**§ 179.302 Special commodity requirements for multiunit tank car tanks.**

(a) \* \* \*



Commodity	Safety relief device	Valve protective housing	Miscellaneous
(Change) Hydrogen sulfide...	Prohibited <sup>1</sup>	Required <sup>2</sup>	(5)
(Add) Nitric oxide.....	do <sup>1</sup> .....	Gas tight <sup>2</sup>	

\* \* \* \* \*

<sup>1</sup> Each valve outlet must be sealed by a threaded cap or a threaded solid plug.  
<sup>2</sup> Valves must be protected by a metal cover.

This amendment is effective September 30, 1973. However, compliance with the regulations, as amended herein, is authorized immediately.

**AUTHORITY:** Secs. 831-835 Title 18, United States Code, section 9, Department of Transportation Act 49 U.S.C. 1657, and title VI and section 902(h), Federal Aviation Act of 1958 49 U.S.C. 1421-1430, 1472(h), and 1655 (c)

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